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ABSTRACT

Teacher achievement expectation effects were investigated for third- and fourth-graders (24 boys and 24 girls, each grade) in open and traditional classrooms. The main and interaction effects of teacher achievement expectation (High/Low), class type (Open/Traditional), sex of child and grade level on students' behavior and teacher-student interaction were examined by four-way MANOVA's. Expected achievement was not significant as a main effect nor in interaction with any of the other independent variables. Class type was significant as a main effect and in interaction with grade level in several analyses. (Author)

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# TEACHERS' ACHIEVEMENT EXPECTATIONS: EFFECTS IN OPEN AND TRADITIONAL CLASSROOMS

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Teachers' Achievement Expectations:

Effects In Open And Traditional Classrooms

It is only relatively recently that investigators have examined whether open and traditional classrooms were truly different on the dimensions assumed to differentiate them (e.g., Barcher and Ward, Note 2; Solomon and Kendall, 1976; Traub, Weiss, Fisher and Musella, 1972; Tuckman, Cochran and Travers, Note 5; Walberg and Thomas, 1972). All of the studies cited above considered the classroom as a whole as the unit of analysis. Yet research (see Brophy and Good, 1974 and Jackson 1968) suggests that "life in classrooms" may be very different for different pupils in the same class, both because of differences in teachers' attitudes and expectancies for different pupils, and because pupils vary in their reactions to the same classroom.

Brophy and Good (1974) present an impressive number of studies demonstrating how group (e.g., SES, sex) and individual characteristics of childres influence teacher-pupil interaction. The most intriguing pupil characteristic Brophy and Good discuss is the child's expected achievement as perceived by his or her teacher. While most of the studies reviewed by Brophy and Good found differences in teachers' interactions with expected high and low achievers, the studies showed a remarkable amount of variety in the patterns of differences that occurred. Some of the difference seemed to be related to the grade level and classroom characteristics of the classes selected for .s study.

One objective of this study was to partially replicate earlier studies which examined the effects of teacher expectations on teacher-pupil interaction with a sample of third and fourth graders, two grade levels that have received little attention. Another, and more important, objective was to assess the

effects of a classroom structure variable - open versus traditional - on the classroom behavior and interaction of pupils whom teachers expect to be high or low achievers at the end of the school year. A study by Richer (1974) is suggestive. He investigated teacher interaction with middle class and working class pupils in teacher-centered and pupil-centered (similar to open) classrooms and found less differential treatment of middle and working class pupils in the latter. Richer suggested that in pupil-centered environments teachers have less control over the flow of interaction so that any tendency for a teacher to favor middle class pupils with attention is reduced. Similar reasoning for high and low achievers suggests that differential treatment of expected high and low achievers is less likely to occur in open classrooms.

The classroom behavior of pupils in both types of classrooms was also examined to see how assumptions about differences between traditional and open classrooms were translated into differences in classroom behaviors.

## Method

### Classrooms

The study was carried out in ten classrooms within one elementary school in a small town in upstate New York. Six classes were initially selected as examples of open classrooms because of the teachers past efforts to become open. Four years previous to the time of the study described here, the teachers of these classes had worked with college consultants to develop open classrooms. A study carried out two years prior to the present one affirmed that the two types of classrooms differed in several ways that were consistent with supposed differences between open and traditional classes (Barcher and Ward, Note 2). The classroom behavior observations which are part of this study also were used to validate the identification of the classes as open or traditional.

The six open teachers each completed the Dimensions of Schooling Questionnaire (DISC), a 30 item teacher self-report instrument developed to elicit information about aspects of classroom settings that are hypothesized to be related to the implementation of an open environment (Traub, et al., 1972). The DISC has been shown to possess good reliability and validity by its authors (Corliss and Weiss, Note 4; Traub, et al., 1972). The six open teachers received scores ranging from 11.46 to 16.35 with a mean of 14.00.

The DISC was also completed by all traditional teachers in the same school (N=10). The traditional classes had pupils of only one grade level. The open classes each were composed of 2nd, 3rd and 4th graders. To insure relatively similar N's for the open and traditional samples, two traditional classes at the 3rd grade level and two at the 4th grade level were selected. In selecting the two classes at each grade level, the teachers with the lowest DISC scores were chosen to provide maximum contrast with the open teachers. The four traditional teachers so selected had DISC scores ranging from 8.94 to 10.53 with a mean of 9.62.

Subjects

The teacher of each class was asked to rank all children in his or her class in terms of expected year end achievement. Within each traditional class the three girls and three boys ranked at the top of the teacher's list (Highs) and the three girls and three boys ranked at the bottom (Lows) were selected for observation. In the open classrooms, where the sample available for ranking was only two-thirds as large as the sample in traditional classrooms (one-third of the students in the open classrooms were second graders), only eight children in each class were selected for observation: the top ranked and bottom ranked boy and girl who were 3rd and 4th graders. In all, 96 children were selected according to the following design: Expected Achievement (High/Low) X Classroom Type (Open/Traditional) X Grade Level (3rd/4th) X Sex (Male/Female).

Instruments

Two observation instruments were used to code each target child's behavior and his interactions with the teacher. The Child Behavior Observation Instrument (CBOI, adapted from a system developed by Barcher and Ward, Note 2) was used to record each child's behavior. After observing each target child for several seconds, the observer coded the behavior simultaneously with respect to several characteristics: the focus of the child's activity; the nature of the child's contact with others; whether the teacher was interacting with, instructing or was uninvolved with the child; and the number of other children in the instructional or work group. After all target children were observed once, the process was repeated four more times so that each child's behavior was recorded over five independent scans.

The Teacher-Student Interactions System (TSIS) which was used to code each child's interactions with the teacher was adapted from instruments developed by Brophy and Good (1970) and Brophy et al. (Note 3). This system codes only dyadic interactions, that is, interactions that involve the teacher and individual children; it does not code interactions in which the teacher addresses the whole class or small groups of children. Five types of dyadic interactions were coded: (1) work-related contacts; (2) procedural housekeeping contacts, which deal with supplies, running errands, trips to the bathroom or other matters not specifically related to classwork; (3) personal/social contacts, in which the topic is of personal interest or concern to the child; (4) approval-seeking contacts, in which the child shows the teacher his or her work or informs the teacher of his or her accomplishments with the objective of obtaining praise; and (5) behavioral evaluations, in which the teacher praises or criticizes a child's classroom behavior. Each type of interaction was coded as it occurred, with contacts initiated by the student being recorded separately from those initiated by the teacher.

Procedure

The DISC was administered to all teachers in one group session at the beginning of the academic year. Teachers' rankings of children's expected year end achievement were obtained at midterm.

The observer reliability of both observation systems was assessed before the data collection for the study began and while the data collection was in process. Two months prior to the data collection phase, two coders were trained to use each observation system and then visited each classroom for approximately 90 minutes. The inter-coder reliability for the CBOI was 88%; for the TSIS it was 73%. The main reason for the low reliability of the TSIS was the number of interactions missed by one or the other coder during fast paced interaction sequences. The reliability coefficient for the TSIS was 83% when only mutually coded events were considered.

The data collection phase lasted for six weeks. During this time each classroom was visited 5-7 times, with the two observers splitting the number of visits to each class. When the observer arrived she immediately made five scans of the target children using the CBOI. The CBOI was only used at the beginning of the first four visits to each classroom. The remainder of each visit was devoted to recording all interactions between the teacher and the target children using the TSIS. Approximately four hours of interaction were recorded with the TSIS for each class. During one visit to each class, both coders were present so that the instruments reliabilities could be assessed again. The intercoder reliability for the CBOI was 94%; the reliability for the TSIS was 78% when omissions were considered and 83% when only mutually coded events were considered.

Data Analyses

For the CBOI, the tallies for each characteristic across all scans were divided by the total number of scans for which a target child was present to

reflect the proportion of time a child's behavior could be described by a characteristic.

For the TSIS, tallies of each type of interaction for the four hours of observation were computed and adjusted for the proportion of the four hours total observation time that the child was available for observation. Each adjusted interaction tally was divided by the total number of teacher initiated or student initiated interactions.

For both the CBOI and TSIS an arcsine transformation of the proportion measures was made to atabilize the variances. The resulting transformed percentage scores were used in the analyses described below.

## Results and Discussion

Three multivariate analyses of variance were carried out. The first MANOVA dealt with the characteristics of the child's behavior. The following variables were included in this analysis: the percentage of times the child was engaged in Procedural/Housekeeping activities, the percentage of times he or she was engaged in Non-Instructional activities, the percentage of times he or she was conversing, the percentage of times he or she was observing/listening, the percentage of times he or she was involved with the teacher and the percentage of times he or she was involved with one to four other children, 5 to 9 or 10 or more children (either working with them or being instructed with them). The main effects for class type and grade were significant [for class type, $F$ (8,73) = 46.84, $p < .001$; for grade, $F$ (8,73) = 3.12, $p < .01$] as were the class type x sex [$F$ (8,73) = 2.58, $p < .05$] and class type x grade [$F$ (8,73) = 5.12, $p < .001$] interactions. No other effects were significant. For purposes of brevity only main effects will be discussed here (see Amato, Note 1 for discussion of other results).

The univariate F's and means for each classroom behavior variable by class type and by grade are presented in Table 1. For class type all univariate F's were significant. The children in the open classrooms spent a greater percentage of time than children in the traditional classrooms in procedural/housekeeping and non-instructional activities, conversing and involved with 1-4 or 5-9 other children; children in the traditional classrooms spent a greater percentage of time than children in open classrooms observing/listening, involved with the teacher and involved with 10 or more other children. Several of these differences are consistent with hypothesized differences between open and traditional classrooms: children in the open classrooms were more likely than the children in traditional classrooms to work together in small groups, converse with others rather than passively observing or listening and to work without the teacher's active direction. One unanticipated finding was that children in the open classrooms spent more time engaged in non-instructional activities (e.g., walking around, chatting with friends) than children in the traditional classrooms.

Turning to the findings for grade level, the univariate F's were significant for only two variables (see Table 1): third graders spent more time than fourth graders engaged in non-instructional activities while fourth graders were more frequently involved with 10 or more other children than third graders.

The CBOI codes only certain characteristics of children's behavior. While it codes the focus of the child's behavior and whether he or she is involved with a teacher, it does not code who initiated the interaction, nor any qualitative aspects of the interaction (e.g., the presence of praise or criticism). To get at these dimensions of children's lives in classrooms, the TSII was used. Two separate MANOVA's were performed, one focusing on the nature of the child's initiations to the teacher and one on the nature of the teacher's initiations

to the child.

The following variables were included in the MANOVA of teacher initiations: the total number of initiations by the teacher, the total number of behavioral criticisms, the percentages of teacher initiations which were work related or procedural/housekeeping in content, the percentage of child initiated work related contacts that were ignored or refused by the teacher[1], the percentage of all child initiated contacts that were ignored or refused by the teacher and the percentage of all work related contacts (whether initiated by the child or the teacher) during which praise occurred (criticisms during work contacts were so rare that they could not be analyzed). The main effects for class type [$F$ (7,74) = 6.75, $p < .001$] and grade [F (7,74) = 3.54, $p < .01$] were significant. No other effects were significant.

The univariate $F$'s and means for each teacher initiation variable by class type and by grade are presented in Table 2. For class type four univariate $F$'s were significant. Compared to children in the traditional classrooms, children in the open classrooms received more teacher initiations but fewer behavioral criticisms, a greater percentage of teacher initiations to them were work related and praise occurred during a greater percentage of their work contacts with their teacher.

The lower number of initiations by teachers in the traditional classes should not be interpreted as a lack of contact. The traditional teachers would frequently initiate to small groups of children or to the whole class, but such contacts were not tallied because they were not initiations to individual children. The greater number of behavioral criticisms in the

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[1] If a teacher refused to respond to a child's initiation when it was made, e.g., "I'll be with you when I'm done.", this was coded as ignoring it. If the teacher then went to the child when she finished what she had been doing, this contact was picked up as an initiation by the teacher.

traditional classrooms stems in large part from what is permitted and not permitted in the two types of classes. Walking around and chatting with friends are two behaviors that were tolerated more in the open classrooms than in the traditional classrooms and consequently were more likely to evoke a response from a teacher in the latter type of classroom. This finding of fewer criticisms coupled with the finding that praise occurred during a greater percentage of work contacts in the open classrooms than in the traditional classes suggests that an open classroom may provide a slightly more positive affective environment than a traditional classroom.

Turning to the grade level findings, the univariate F of only one variable was significant. Third graders received significantly more behavioral criticisms than did fourth graders.

All of the significant differences in classroom behavior and teacher initiation variables were due to main or interaction effects of class type or grade level. For no variable was expected achievement by itself or in interaction with other independent factors associated with the children's behavior nor with the teachers' interactions with the children. With respect to the latter, the failure to find significant differences is, in itself, an important finding. Consideration of the teacher expectation literature might lead one to hypothesize that expected low achievers compared to expected high achievers would receive fewer teacher initiations, have more of their initiations to the teacher ignored and to be praised less. None of these expected differences were significant, rather teachers were remarkably even-handed in their treatment of both groups of students.

Of interest is whether expected high and low achievers differ in their interactions with the teacher (e.g., do high achievers initiate more contacts?). A MANOVA was performed to investigate differences in child

contacts. The following variables were included in the MANOVA: the total number of child initiations to the teacher, and the percentages of child initiations which were work related, procedural/housekeeping or social/personal in nature. Only the main effect for class type was significant [$F$ (4,77) = 4.43, $p < .01$].

The univariate $F$'s and means for each child contact variable by class type are presented in Table 3. Compared to children in the traditional classrooms, a greater percentage of the initiations of children in open classrooms were personal/social in content, while a smaller percentage were work related. Why a greater percentage of initiations by open classroom children were personal/social contacts is unknown, but considered with the findings of fewer behavioral criticisms and a greater likelihood of praise during work contacts, it may be that children feel freer to talk with the teacher about social events or personal concerns.

## Conclusions

The original objective of this study was to see whether a classroom structure variable--open versus traditional--differentially affects the behavior and teacher-student interaction of children for whom teachers held high or low expectations of achievement. The most notable and consistent finding was that expected achievement was not significant as a main effect nor in interaction with any of the independent variables. Although the teachers held differential expectations for each group of children, no differential treatment occurred. These findings of statistical nonsignificance for expected achievement are very important for low achievers. Brophy and Good (1974) describe expectation effects as indicative of ineffective teaching, with expected low achievers bearing the major burden of this poor

teaching. Since teachers' achievement expectations mirror children's achievements rather well, expected low achievers in classes where expectation effects appear must bear two burdens: their own lower achievement vis-a-vis their peers, and inappropriate treatment by their teachers which may reduce their achievement further.

The one variable that consistently had an impact on a variety of measures was type of classroom. Several of these differences were consistent with hypothesized differences between open and traditional classrooms. Several unexpected differences were found: children in the traditional classes spent less time in non-instructional activities than children in the open classrooms, but the latter children received fewer behavioral criticisms, received praise during a greater percentage of work contacts and seemed more willing to initiate to the teacher to talk about social events or personal matters.

It is not possible to say which type of classroom is "better" based on the findings of this study. For some parents and school administrators the difference of major concern may be the percentage of time spent in non-instructional activities; for others fewer behavioral criticisms may be an important factor. All that can be said at this point is that whatever differences exist, the differences are experienced equally by students, regardless of the achievement expectation held for them by their teachers.

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TABLE 1

Univariate F Ratios and Means for Classroom Behavior Variables by Type of Class and Grades

| Variable | Class | | | Grade | | |
|---|---|---|---|---|---|---|
| | F | Open Mean | Traditional Mean | F | Third Grade Mean | Fourth Grade Mean |
| Procedural/Housekeeping | 41.65*** | 21.58 | 11.26 | 3.53 | 17.92 | 14.92 |
| Non-Instructional | 45.52*** | 27.01 | 14.85 | 4.23* | 22.78 | 19.08 |
| Conversing | 77.39*** | 30.62 | 16.05 | .72 | 22.63 | 24.04 |
| Observing/Listening | 85.44*** | 39.88 | 60.86 | .00 | 50.33 | 50.41 |
| Involved with Teacher | 216.65*** | 26.15 | 69.58 | 2.17 | 45.69 | 50.04 |
| Involved with 1-4 Peers | 194.01*** | 42.04 | 13.11 | .33 | 28.17 | 26.98 |
| Involved with 5-9 Peers | 5.46* | 12.77 | 8.76 | 1.68 | 11.88 | 9.66 |
| Involved with 10 or More Peers | 262.72*** | 17.85 | 68.26 | 6.85** | 38.98 | 47.12 |

Note.--Each mean is derived from the percentage of times during all scans that each child's behavior could be described by the variable.

* $p < .05$

** $p < .01$

*** $p < .001$

TABLE 2

Univariate F Ratios and Means for Teacher Contact Variables by Type of Class and Grade

| Variable | Class | | | Grade | | |
|---|---|---|---|---|---|---|
| | F | Open Mean | Traditional Mean | F | Third Grade Mean | Fourth Grade Mean |
| Total Teacher Initiations | 4.25* | 4.56 | 3.34 | .00 | 3.93 | 3.97 |
| Total Behavioral Criticisms | 5.41* | 1.02 | 2.79 | 6.82** | 2.90 | .92 |
| % of Teacher Initiations That Were Work Related | 6.80** | 52.66 | 43.41 | .17 | 47.31 | 48.76 |
| % of Teacher Initiations That Were Procedural/Housekeeping | 1.22 | 37.40 | 37.94 | 3.64 | 33.12 | 39.22 |
| % of Child Initiated Work Contacts That Were Refused or Ignored | 3.20 | 23.01 | 27.89 | .34 | 26.24 | 24.66 |
| % of All Child Initiated Contacts That Were Refused or Ignored | .27 | 26.26 | 24.96 | .30 | 26.29 | 24.92 |
| % of All Work Contacts During Which Praise Occurred | 8.13** | 19.44 | 14.71 | .09 | 16.83 | 17.32 |

*p < .05

**p < .01

TABLE 3

Univariate F Ratios and Means for Child Contact Variables

by Type of Class

| | F | Open Mean | Traditional Mean |
|---|---|---|---|
| Total Child Initiations | .98 | 5.77 | 4.72 |
| % of Child Initiations That Were Work Related | 9.74** | 39.66 | 49.25 |
| % of Child Initiations That Were Procedural/Housekeeping | .70 | 33.91 | 31.60 |
| % of Child Initiations That Were Personal/Social | 9.85 | 25.48 | 19.58 |

** $p < .01$